

Attachment – T-factor Testing Request

Determining Soil Loss Tolerance

The guide in Table 1 is used for assigning T values. An adequate rooting depth must be maintained in the soil for plant growth. For soils that are shallow over hard rock or other restrictive layers, it is important to retain the remaining soil; therefore, not much soil loss is tolerated. The T value should be less on soils shallow to impervious layers than for soils with good soil depth or for soils with favorable underlying soil materials that can be renewed by management practices.

Table 1. Guide for assigning soil loss tolerance.

Rooting depth (cm)	Soil loss tolerance values (tons/acre)	
	Renewable soil†	Non-renewable soil‡
0-25	1	1
25-50	2	1
50-100	3	2
100-150	4	3
≥ 150	5	5

† Soils with favorable substrata that can be renewed by tillage, fertilizer, organic matter, and other management practices.

‡ Soils with unfavorable substrata such as rock or soft rock that cannot be renewed by economical means.

Draft T-factor Calculation

Table 2. Summary of T-Factor criteria and input from the States on what is renewable and nonrenewable soil material.

Material	Renewable	Nonrenewable
Abrupt textural change <ul style="list-style-type: none"> Depth to “abrupt textural change” in the component restrictions table. 	NV, IL, IA, WA, NM, ME, AR, TX, AZ, AL	
Carbonatic 15 – 60% <ul style="list-style-type: none"> Depth to layer with ≥ 15 and $< 60\%$ calcium carbonate in the < 2 mm fraction. 	NV, WA, CO, NM, AZ	
Carbonatic $> 60\%$ <ul style="list-style-type: none"> Depth to layer with $\geq 60\%$ calcium carbonate in the < 2 mm fraction. 		TX
Cinders <ul style="list-style-type: none"> Depth to layer with $\geq 15\%$ cinders. 		AK, CO, NM, AZ, WA, (HI)
Coral bedrock		HI, FL
Densic materials (Dense Glacial Tills/Dense Basal Tills), Fragipan <ul style="list-style-type: none"> Depth to “densic materials”, “fragipan”, or “cemented horizon” in the component restrictions table. OR <ul style="list-style-type: none"> Bulk density is > 1.79 		IL, VT, NE, MA, WA, AZ, ME, AR, AK, SD, ID, ME, NJ, WV, MO, (NV, HI, AL, IN, OH, CO, ME, TX, OH)
Duripan < 3 "thick (with qualifiers) <ul style="list-style-type: none"> Depth to “duripan” in component restrictions table that has layer thickness ≤ 7.6 cm. 	NV, WA, NM, TX, AZ	

Duripan >3"thick (with qualifiers) <ul style="list-style-type: none"> Depth to “duripan” in component restrictions table that has layer thickness > 7.6 cm. 		NV, WA, ID, AZ, AR, TX, NM
Eolian Sands <ul style="list-style-type: none"> Depth to C horizon of soils with “eolian sand” parent materials. 	NE, WA, IL, CO, NM, ME, AR, AZ, TX, AL	
Glacial tills <ul style="list-style-type: none"> Depth to C horizon of soils with “glacial till*” parent materials. 	ND, WV, SD, IL, IA, ME, WA, NE	
Glaucconitic <ul style="list-style-type: none"> If “glaucconitic” then T = 1. If taxonomic mineralogy is “glaucconitic”, it is assumed that the top of the mineralogy control section is ≤ 50 cm. OR Depth to “greensands” parent material (C horizon). If the parent material kind is “greensands”, it is assumed that the parent material is glaucconitic. 		NJ
Gypsitic <ul style="list-style-type: none"> Depth to layer that contains > 5% gypsum and where the % gypsum x horizon thickness ≥ 150 	NV, FL, WA, CO, TX, AZ, NM	
Hard bedrock (lithic) - UWB <ul style="list-style-type: none"> Depth to “bedrock (lithic)” in the component restrictions table. 		All states
Lacustrine deposits <ul style="list-style-type: none"> Depth to C horizon of soils with “lacustrine deposit” parent materials. 	ND, SD, IL, CO, NM, ME, TX, AZ	

Loess <ul style="list-style-type: none"> Depth to C horizon of soils with “loess” parent materials. 	NE, WA, ND, KS, IL, CO, IA, NM, ME, AR, TX	
Marl <ul style="list-style-type: none"> Depth to “marly” texture. OR Depth to C horizon of soils with “marl” parent materials. 	FL, IL, CO, TX , NM	
Natric horizons <ul style="list-style-type: none"> Depth to “natric” horizon in component restrictions table. OR Depth to layer with an SAR ≥ 13 and not salic. 	NV, AL, IL, CO, NM, AR, TX, AZ, WA	
Organics Histosols <ul style="list-style-type: none"> Depth to mineral layer with an OM content $< 20\%$ 	AK, IL, IA, NM, ME, TX, AZ, MA	
Organics Sapric (buried?) <ul style="list-style-type: none"> Depth to layer with an OM content $\geq 20\%$ and has surface mantle that is ≥ 50 cm thick 	FL, IL, IA, NM, ME, TX, AZ	
Ortstein <ul style="list-style-type: none"> Depth to continuous “ortstein” in the component restrictions table. 		IL, AK, ME, FL, AL
Paralithic materials (soft bedrock) <ul style="list-style-type: none"> Depth to “soft bedrock” in the component restrictions table. 		<u>All states</u>
Permafrost (with qualifiers) <ul style="list-style-type: none"> Depth to “permafrost” in the component restrictions table. 		AK
Petrocalcic <ul style="list-style-type: none"> Depth to “petrocalcic” in the component restrictions table. 		NE
Petroferric <ul style="list-style-type: none"> Depth to “petroferric” in the component restrictions table. 		NJ,(FL)

Plinthite <ul style="list-style-type: none"> Depth to “plinthite” in the component restrictions table. This material will be rated as nonrenewable. If not restricting, the depth to “v” plinthite in the horizon name. This material will be rated as renewable 	FL, AL, HI, ME, TX	
Porcellanite <ul style="list-style-type: none"> Depth to $\geq 15\%$ “porcellanite” fragments in the horizon fragment table. 		ND, NM
Rock frags $> 60\%$ All Skeletal plus Fragmental <ul style="list-style-type: none"> Depth to layer with $> 60\%$ rock fragments 		AK, WA, CO, NM, AZ, ME, AR, IL, TX, NV, MA, WV,
Rock Frags 35 – 60% (sandy) <ul style="list-style-type: none"> Depth to layer with 35 to 60% rock fragments and have $\leq 15\%$ clay and $\geq 70\%$ sand. 		NJ, NM, AZ, ME, WA, VT, NE, MA, ND, AK, SD, IA, AZ, (NV, KS, IL, CO, WA, TX, ME, ND)
Rock frags 35 – 60% (loamy, clayey) <ul style="list-style-type: none"> Depth to layer with 35 to 60% rock fragments and have clay contents $\leq 35\%$ and not have textures of LS or S. 	NJ, NM, AZ, ME, WA, (IL, CO)	
Salic horizons - SAR < 13 <ul style="list-style-type: none"> Depth to layer with SAR < 13 and where horizon thickness x EC ≥ 900 	AL, CO, WA, NM, TX, AZ	
Salic horizons - SAR 13-30 <ul style="list-style-type: none"> Depth to layer with SAR ≥ 13 and where horizon thickness x EC ≥ 900 		AL, CO, TX, AZ, NM, WA
Saprolite <ul style="list-style-type: none"> Depth to C horizon of soils with “saprolite” parent material 	HI, PA, NM, ME, TX, AZ, AL, VT	

<p>Spodic materials</p> <ul style="list-style-type: none"> Depth to “spodic horizon” in the component-feature-kind table. <p>OR</p> <ul style="list-style-type: none"> Depth to “Bs” or “Bhs” layer 	FL, WA, CO, NM, ME, TX, AL	
<p>Strongly contrasting Stratification</p> <ul style="list-style-type: none"> Depth to “strongly contrasting textural stratification” in the component restrictions table. 	AL, FL, IL, CO, NM, ME, AZ, TX	
<p>Renewable parent materials</p> <ul style="list-style-type: none"> Beach sand, cryoturbate, colluvium, all volcanic ash, all alluvium, all tills, tephra, all debris-flows, saprolite, residuum, pedisediment, parna, outwash, all organics, mine spoil or earthy fill, all loess, all eolian, drift, diatoms, diatomaceous earth, diamicton, and all “deposits” except those specified as non-renewable. 		
<p>Nonrenewable parent materials</p> <ul style="list-style-type: none"> pumice, pyroclastic flow, pyroclastic surge, rock spread deposits, rock topple deposits, rockfall avalanche deposits, rockfall deposits, rotational rock slide deposits, volcanic bombs, slump block, talus, scree, scoria, grus, lahar, and lapilli 		

List of NASIS data elements used in calculating T-factor:

Component Table

- Component kind
- Taxonomic order
- T factor

Component Parent Material Table (where copmgrp.rvindicator = yes)

- Parent material kind

Component Restrictions Table

- Depth, rv
- Layer thickness, rv
- Restriction kind

Component Diagnostic Features Table

- Diagnostic feature kind (only used for spodic horizon)
- Depth, rv

Component Taxonomic Family Mineralogy Table

- Mineralogy

Component Horizon Table

- Horizon designation
- Horizon designation master
- Horizon depth, rv
- Total clay, rv
- OM, rv
- Gypsum, rv
- CaCO₃, rv
- EC, rv
- SAR, rv
- Bulk density, rv (only used to find dense materials in lieu of comp restrictions)

Horizon Fragment Table

- Fragment volume, rv
- Fragment kind (only used for cinders and porcellanite)
- Fragment hardness (if null, indurated is assumed)

Horizon Texture Table (where chtexturegrp.rvindicator = yes)

- Texture class